GAS JOURNAL

VOL. 269. NO. 4632 104TH YEAR MARCH 12, 1952

BOUQUETS FOR ALL

AS a spectacle and as an indication of national character the Ideal Home Exhibition makes the South Bank look like a pile of bricks. The fact that it is sponsored by a Tory newspaper and is fairly bursting with private enterprise and competition of the most violent type must not be allowed to detract from is claims as a national spectacle and phenomenon. It epitomises all that is sentimental, home-loving, and mildly vulgar in British life. And it gets better and better. For non *Daily Mail* readers we mention briefly the latest shoal of wonders in our review of the exhibition on a later page.

For the gas industry the 1952 Ideal Home Exhibition is an important event—certainly the most important of the kind since the war. As announced in our columns last week, there is to be found at Olympia a composite gas section. The appearance of 13 gas and coke stands, in addition to that of the Gas Council, is no indication that things are back to normal, although it is likely that at the time of committing themselves to appear, the firms concerned had hopes of increasing normality. If it is nothing more it is a gesture, and a very excellent one too. The section makes a brave show and is something of which we may well be proud. There are new appliances to interest the housewife and if those receiving most publicity are remarkably expensive, others on show are as remarkably cheap.

The participation of the manufacturers has affected the responsibilities of the Gas Council. Hitherto this one stand has had to represent the whole industry and present as complete and balanced a picture as possible. This year its burden is lighter and there are signs of a greater freedom of choice, together with a desire to provide a platform for perhaps lesser known appliances which are not represented elsewhere in the exhibition. Few, we think, will find fault with the way this has been done.

The theme of the Gas Council's stand this year, 'Bouquet for Housewives,' described as 'a tribute to the women of this country who by their homemaking, economy, and ingenuity contribute so much to the comfort and well-being of their families,' is a little thin, although it is linked with the presentation, on the stand, of bouquets to winners of the cookery competition held elsewhere in the exhibition. But it is not allowed to interfere with the principal function of the stand, the design of which is both clean and attractive. Most important, to our way of thinking, is the openness of the stand, and the ease with which visitors can 'get to grips' with exhibits. As at last year's show, the electricity hordes, massed across the narrow channel bisecting the Grand Hall, have sacrificed simplicity to ingenuity. The E.D.A. stand with its small theatre, revolving stage, and professionally acted sketches, and so on, shows no lack of inventiveness, but it embraces two mammoth faults: Its design does not permit a smooth flow of visitors, and the appliances are, for the most part, kept at a distance. (Unless the latter point is supposed to have a certain topical significance?) Gas visitors to this stand are advised to keep their eyes open for an electrical fire-lighter and a device that makes the vacuum cleaner and the sink into a washing machine!

Summing up, this is an Ideal Home well above average, and we would urge our readers to visit Olympia before March 29 and see for themselves how well their industry is showing the flag and how stoutly the appliance manufacturers have supported the gas cause. If we may harp back to the Festival again—and, after all, it closed only five months ago—there is another comparison which may be made. The South Bank, pomp and importance notwithstanding, was cold and clinical. The Ideal Home, for all its size, is intimate and warm; and it conveys vividly the Britisher's love of warmth—surely one of our most striking characteristics. There is therefore a considerable emphasis on the fuel industries, and the overseas visitor, after having explored Olympia this month, would, we believe, have a better understanding of British reliance on fuel in the home and the way in which the gas industry is meeting that need than was ever apparent on the other bank of the Thames.

WHOLE-HOUSE HEATING

IN a report on the experimental housing at Abbots Langley shortly to be published it is shown that, of 22 families, three are content to have sitting warmth (air temperatures around 70°F.) in the living room only with background warmth (45° to 50°) in the rest of the house, 14 wanted sitting warmth in the living room, working warmth (60° to 65°) in the kitchen, and background warmth in the bedroom, and only five wanted sitting warmth or at least working warmth throughout the house. Mr. F. C. Lant and Dr. J. C. Weston presented a paper to the Institute of Fuel on February 19 on the temperature, fuel consumption, and fuel costs in houses with various forms of whole-house heating and with various forms of fuel, compared with data for conventional heating arrangements. In addition to the houses at Abbots Langley eight local authorities were asked to build houses 'on the open plan' with different heating systems—low pressure hot water central heating, ductless forced circulation warm air system, and ducted forced warm air system, the last with a gas fired air heater installed in the kitchen with warm air ducted to the living room and bedrooms. The open plan houses at Abbots Langley were heated by a solid fuel furnace copied from an American design. These houses were built with external walls of cavity construction lined with ½ in. plaster board, 4 in. glass wool insulation of the roof space, wood block floor in the living room, and quarry tiles in the kitchen. Low-level inlet of ducts was found to be preferable, and the fact that all duct arrangements gave an upstairs temperature as high as or higher than downstairs suggested that in an open plan house the inlets should be confined to the ground floor. The stairway which rises straight out of the living room formed an effective method of carrying warm air upstairs.

The authors asked, why the living room temperatures, particularly at 9 p.m., are higher in these houses than in those with conventional heating. They suggest that it might be that the whole-house heating systems are *capable* of providing these higher temperatures, but they admit that the tenants provided at their own expense a radiant source of heat to supplement these systems which, they say, 'suggests that the higher temperatures are to be regarded as a necessity with convective heating.'

Fuel consumptions are not quantitatively reported nor are basic fuel costs given, but it is stated that 'despite the low input and the fact that gas was charged on a preferential tariff (about 9d. per therm) the cost is exceptionally high. The gas furnaces were not for a variety of reasons regarded as satisfactory by the tenants, the high cost being the most important objection.' Efficiency, defined as the ratio, heat delivered to the house/thermal input, is stated, as gas 80% in a warm-air heated local authority-house, solid fuels ranging from 60 to 70%, against 49% with solid fuel conventionally heated houses, showing 'that British domestic heating is by no means as inefficient as is often asserted.'

The main point in the conclusions drawn from these data is that whole-house heating is only likely to be favoured by tenants whose economic circumstances permit them to pay for the higher standard of comfort which they may enjoy. 'Greater hardship results from putting in a family which cannot afford to heat the whole house . . . . than from putting a family which prefers a house which is warmed throughout, and can afford to pay for the heating, into a house with a modern open fire warming only the ground floor.'

REPRESENTING THE PUBLIC

TO all requests for preferential gas tariffs the Southern Gas Consultative Council has one simple answer—that it has agreed to support the Southern Gas Board's policy of giving reductions in price of gas only according to the quantity consumed, irrespective of the purpose of its use. That is a policy which is being followed by several, but not all, of the other boards, with the support of their consultative councils, to the disappointment of many consumers who enjoyed special tariff concessions before the industry was nationalised and particularly of those who, within a few months before the change, had been persuaded to install expensive apparatus in anticipation of continuing to enjoy those reduced tariffs at any rate during the major part of the working life of such appliances. So long as particular trades enjoy special rates in some parts of the country there will continue to be dissatisfaction in those areas where quantity rather than purpose has become the only basis for reductions.

The area boards are autonomous bodies and are not likely to be persuaded to adopt a particular policy just because it has been favoured in some other part of the country, where local conditions may be different. But if gas is to continue to render maximum service there may well be some lead from above, and it seems to us that the Southern Consultative Council has taken the right line in asking the National Fuel Policy Committee—the Ridley Committee—to take appropriate action so that there shall be uniformity of policy, thus obviating one industry receiving preferential treatment in one part of the country and not in another. Berkshire bakers and confectioners, who sent a deputation to the Consultative Council in December, have been informed of the decision to support the Board's policy. Cinematograph exhibitors, some of whom have found that their gas boilers are less economical under the new method of charge than under pre-nationalisation special tariffs, have been told that while it is felt that no useful purpose would be served by receiving a deputation the Council is prepared to listen to what they have to say. With some acrimony it was urged at a recent meeting of the cinema managers that the Council was 'supposed to represent the public and not the Gas Board, which it seemed to be representing at the moment.' The 'public' is a comprehensive term, and includes not only cinematograph exhibitors, but the general body of consumers who would, between them, have to share the burden of any concession granted to sectional interests.

The significance of 'public' representation was noted when, at the Reading meeting last week, the Chairman of the Consultative Council cleared up an apparent misunderstanding of the statutory position of the Council. Before the Gas Board submitted its proposals for the extension of the Oxford gasworks to the Planning Committee of the City Council it fulfilled an obligation by discussing them with the Consultative Council. The Chairman of the Planning Committee made a grievance of this procedure which, however, was said by the Consultative Council Chairman to have been perfectly correct. He might properly have added that although the Council was consulted as representing the public, the actual consultation took place, quite rightly, *in camera*. There must inevitably be some delicate negotiations before a final solution is found to the problem created by the dropping of the scheme for extending the existing Oxford works, and while we are eager to know how the gas needs of the city and university are going to be met in the next few years we shall not expect the details to be released for publication until the preliminary negotiations have been satisfactorily completed.

AUSTRALIAN IMPORT CUTS

THE Australian Government's decision, announced by Mr. Menzies, the Prime Minister, on Saturday, to cut imports from sterling sources as well as those originating in dollar and other hard currency countries, will be severely felt by British manufacturers of refrigerators, washing machines, cookers and cooking utensils, and other appliances, as well as by exporters of cars and textiles. The cuts in imports of the various categories of goods, with an overall average of 50%, will range from 20% to 80% compared with 1950-51. In announcing the cuts Mr. Menzies said that Australia would have a trade deficit of £600 mill. in Australian currency (£480 mill. sterling) this year unless something was done. The cuts were not permanent, he said, and would be modified as the balance of payments improved, but it seems probable that the regulations will continue in some form for at least 15 months. During 1951 Great Britain exported to Australia goods to the value of just under £324 mill.; this will be cut by £200 mill., or more than 61%. All the items with which the manufacturers of gas appliances are concerned, however, fall within the category which is to be subject to a cut of 80%. Highly essential goods will be licensed 'subject to administrative control.' Items will be licensed on an item for item basis and only importers of such goods in 1950-51 will be permitted to obtain licences on a restricted basis for future imports. In London the view in official quarters was that the decision, though seriously affecting British exports, would generally tend to stabilise and strengthen the sterling area. The view was also expressed that it should not be impossible for Britain to find alternative markets for the mechanical and capital exports which had hitherto gone to Australia.

SMOKE ABATEMENT APPEAL

THE work of the National Smoke Abatement Society should find ready support in the ranks of the gas industry, and we have no hesitation in commending to our readers' notice and sympathy the letter on behalf of the Society which was published in *The Times* on March 4. Over the signatures of a number of influential people, the letter drew attention to the valuable work of the Society for public health and amenities and for ending what has been called the smoke tax—by which is meant the heavy cost, shared by all, of cleaning up the corrosive smoke deposits and the damage done to goods and property of all kinds, amounting to at least £100 mill. per annum. The nation cannot afford so gross a waste. This alone, as the letter pointed out, gives the Society all the claim it needs for support and recognition; but today its case is powerfully reinforced by the fact that smoke, being incompletely burned fuel, represents a waste of millions of tons of coal a year. Encouraged more actively the Society can play a very useful part in the attack on our deepening fuel crisis. It is a disturbing reflection on our national conscience that an organisation which, if effectively supported, could do so much for the common weal, commands an income of less than £5,000 per annum. With such limited funds at its disposal its educational and propaganda work and services are sadly circumscribed, and it is to be hoped that this appeal will do much to improve the present state of affairs.

Letter to the Editor

THE 'R' RATIO

DEAR SIR,—I was very glad to see Mr. Avery's reply to my letter in which I suggested replacing the 'R' ratio for the capacity of oxide boxes by the contact time expressed in seconds. It is particularly useful to have Mr. Avery's opinion as one of the originators of the term in question, and I fully agree that it has been a useful idea. Indeed, I used it myself with advantage for many years.

I have found, however, that it is not fully understood by everyone, even in England, and by scarcely anyone abroad. Contact time, on the other hand, is universally understood and in any case needs no explanation: its significance is clear to everyone who has any technical instinct.

The real point, however, would seem to be that the 'R' ratio is really an expression of contact time but it is stated in hours, inverted, and called cubic feet of gas per hour per cubic foot of oxide (per box), and given a letter 'R' for brevity.

Why not use the reciprocal and call it 'seconds'? This is brief, to the point, needs no explanation, and creates no doubts or difficulties. Moreover the use of this expression would bring English literature in line with foreign literature, making English publications on purifiers understandable to foreign readers. Need I say that any English publication in which the term 'R' is used without any explanation, as has occurred in some recent articles and papers, is completely meaningless to foreign readers? May I also add that when the values of 'R' quoted in such papers are not quite normal, doubts immediately rise in the minds of English readers as to whether the ratio has been used correctly?

I have myself seen references to English purifier practice in Foreign journals in which serious errors occurred which seem to be traceable to the use of 'R' values, and in the discussion of a recent paper in England confusion arose regarding the capacity of boxes which had been expressed in 'R' ratio terms.

Perhaps the situation is that, as is stated by Mr. Avery, the 'R' value proved very useful when applied to English conditions when four boxes were standard. This situation has changed and is likely to change further. The time appears to me to have arrived when the nomenclature should also be changed to accord with modern conditions.

With regard to Mr. Twist's letter, I hesitate to enter into an argument concerning grammar, and and am well content to accept Mr. Twist's suggestions. In this present letter I have used the expression 'contact time' and shall continue to do so, and am much obliged to Mr. Twist for the correction.

Yours faithfully,

R. J. S. THOMPSON,
Continental Representative,
W. C. Holmes & Co., Ltd.

9, Rue Pierre Sémard,
Paris 9e.
March 3, 1952.

Personal

Mr. L. Bagrit, Managing Director of Elliott Brothers (London), Ltd., left London by air on March 7 for a business journey to the United States. His visit is associated, among other things, with the manufacture, under licence, in the United States of certain types of Elliott electronic apparatus.

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Mr. G. W. J. Bradley, F.R.I.C., M.INST.GAS E., F.INST.F., has been appointed Divisional Carbonisation General Manager of the East Midlands Division of the National Coal Board. He will be responsible for the production of carbonised and other processed fuels in that division. Mr. Bradley is at present Carbonisation Officer of the division.

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Mr. L. E. Meeks and **Mr. H. R. Walton,** B.SC., formerly Directors of Electroflo Meters Co., Ltd., have recently joined Elliott Brothers (London), Ltd. Mr. Meeks is closely identified with the production and design sides of the Elliott organisation. Mr. Walton, in addition to his new connection with Elliott Brothers (London), Ltd., has taken charge of sales of the products of Fisher Governor Co., Ltd., manufacturers of motor diaphragm valves, regulators, level controllers, etc., a subsidiary of Elliott Brothers (London) Ltd.

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Mr. E. H. Harman, B.SC., has been appointed Deputy Chairman of the East Midlands Gas Board in succession to Mr. Sydney Smith, who was recently appointed Chairman of the Board. Early in 1949 Mr. Harman was appointed Commercial Manager of the East Midlands Gas Board, but before vesting day he became Divisional General Manager of the Sheffield and Rotherham Division. After some years with the South Metropolitan Gas Company he became Secretary of the Commercial Gas Company and in 1944 he undertook the additional duties of General Manager which he continued to discharge with distinction until nationalisation of the industry.

Obituary

JOSEPH HENRY CANNING

Mr. J. H. Canning, O.B.E., J.P., past President of the Institution of Gas Engineers, who had rallied well after an operation which he underwent some weeks ago, died at the Rothbury Nursing Home, Newport, Mon., on March 8, in his 77th year. Eldest son of the late Mr. Thomas Canning, he was educated at Prior Park College, Bath, and subsequently studied engineering and science at the Newport Technical College, where he was particularly successful. He was Silver Medallist in Science in 1893 and Gold Medallist for the best record in science over the three years 1892 to 1895. In 1897 he was awarded First Prize in the Honours Class and the National Silver Medal of the City and Guilds of London Institute.

He was appointed Engineer and Manager of the Newport Gas Company in 1919 in succession to his father, a position he held until his retirement in 1939, when he was elected to the Board of the Company. He attained the highest honour open to a gas engineer in 1932 when he became President of the Institution of Gas Engineers, of which he became an Associate Member in 1898 and a full Member in 1911. He had already twice occupied the postion of President of the Wales and Monmouthshire Association of Gas Engineers and Managers in 1910 and 1920—a post to which he was again elected in the year of his retirement. From the end of that year up to the time of his death he continued in office as Hon. Treasurer of the Association (latterly the District Section of the I.G.E.). In 1915 he was appointed by the High Explosives Committee to organise and direct the work of providing high explosives in Wales and Monmouthshire, being assisted by a committee of five gas engineers. He was appointed Divisional Coke and Gas Officer for the same area in 1918. Mr. Canning was created an Officer of the Order of the British Empire in 1920 for his war services. Among his many other activities he had been Chairman of the South Wales District Committee of the Federation of Gas Employers and also of the South Wales Regional Gas Industrial Council.

One of the highest of Papal decorations was awarded to Mr. Canning in 1930 when he was made a Knight of the Order of St. Gregory for his services generally, and especially for his services in connection with the beatification of English and Welsh martyrs. The Order was founded in 1831 by Gregory XVI, and the decoration was for 'civil or military virtues in the Vatican States.' A special solid gold medal was struck in the Vatican Mint to celebrate the occasion of the beatification of martyrs, and this also was presented to Mr. Canning. Only 24 such medals were struck. The funeral is today, following Requiem Mass at St. Mary's Church, Newport.

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Mr. Philip Crosby Pope, Secretary of the Institute of Fuel from its inception in 1927 until his retirement in 1946, died suddenly on March 1, aged 80. Educated at Tonbridge he was for some years engaged largely in the application of mechanical and electrical power in northern collieries. On the outbreak of the 1914-18 war he joined the Department of Explosive Supply and was Director of Purchases throughout that war, at the end of which he took up as one of his main interests the low temperature carbonisation of coal. In 1925 he was Chairman of Council of the Institution of Fuel Economy Engineers, and when the first Lord Melchett (then Sir Alfred Mond) became President of that Institution, as also of the Institution of Fuel Technologists, of which Sir William Larke was Chairman of Council, Mr. Pope was a moving spirit in suggesting to Mond the merging of both Institutions in what in July, 1927, became the Institute of Fuel. On his retirement he was made an Honorary Member of the Institute. He had in 1943, during the Presidency of Mr. W. M. Selvey, been the recipient together with Mrs. Pope and their daughter, Miss Joan Pope, of a presentation of silver in token of the appreciation with which the Council regarded the work he had done for the Institute with the support of Mrs. and Miss Pope. The late Secretary was retained for a term as adviser to the Council, and had indeed, in spite of failing eyesight, been frequently in the company of his many friends in Institute and wider circles during the six years of retirement.

Diary

Mar. 14.—Scottish Juniors (Western): Annual Dinner and Dance, Beresford Hotel, Glasgow.

Mar. 15.—Wales and Western Juniors: Joint meeting. 'Gas Masks, Resuscitation, and First Aid,' J. W. Green (Stroud). At Gloucester.

Mar. 17.—Eastern G.C.C.: Connaught Rooms, London, W.C.2, 2 p.m.

Mar. 18.—Institute of Fuel: 'Fuel, Heat, and Power Auditing,' L. Clegg, M.B.E., and J. Price Walters, B.SC. (TECH.); Institution of Mechanical Engineers, Storey's Gate, 5.30 p.m.

Mar. 18.—London and Southern Section, I.G.E.: 'Experiences with Gasholders and Gasometers,' W. H. White (Clerk of Works, North Thames Gas Board). 17, Grosvenor Crescent, 2.30 p.m.

Mar. 19:—Yorkshire Juniors: President's Day. Visit to Drakes, Ltd., Halifax.

Mar. 19.—Scottish Juniors (Western): Afternoon visit to Scottish Oil Refineries, Ltd., Grangemouth.

Mar. 19.—South Western Section, I.G.E.: 'Coal,' A. P. Jennings. Bath.

Mar. 19.—Eastern Juniors: 'Boosters and Governors,' T. W. Aiken and B. I. Stone (Bryan Donkin Co., Ltd.). At Luton.

Mar. 19.—London and Southern Juniors: Visits—6 p.m., Coombe Bakeries, Twickenham; 9 p.m., London Express Newspapers, Fleet Street, E.C.4.

Mar. 20.—Manchester and Midland Juniors: Joint visit to James Stott & Co., Ltd., Oldham.

Mar. 20.—London and Southern Juniors: Visit to Electroflo Meters Co., Ltd., Park Royal. 2.30 p.m.

Mar. 21.—Northern Junior Gas Association: 'Pre-Stressed Concrete' E. L. Robson (Newcastle); and 'The Human Element' H. Waiton (Howdon). At Hartlepool.

Mar. 25.—Midland Juniors: 'Recent Extensions at Hereford.'

Mar. 26.—Eastern Section, I.G.E.: Visit to St. Albans works, Watford Division, Eastern Gas Board.

Mar. 26.—Chemical Engineering Group (S.C.I.): Joint meeting with Birmingham Section, S.C.I., and Midlands Branch, Institution of Chemical Engineers: 'The Planning of the Fawley Refinery.' G. Noble.

THE OLDEST STREET IN EUROPE

Service layers at work in Vicars' Close

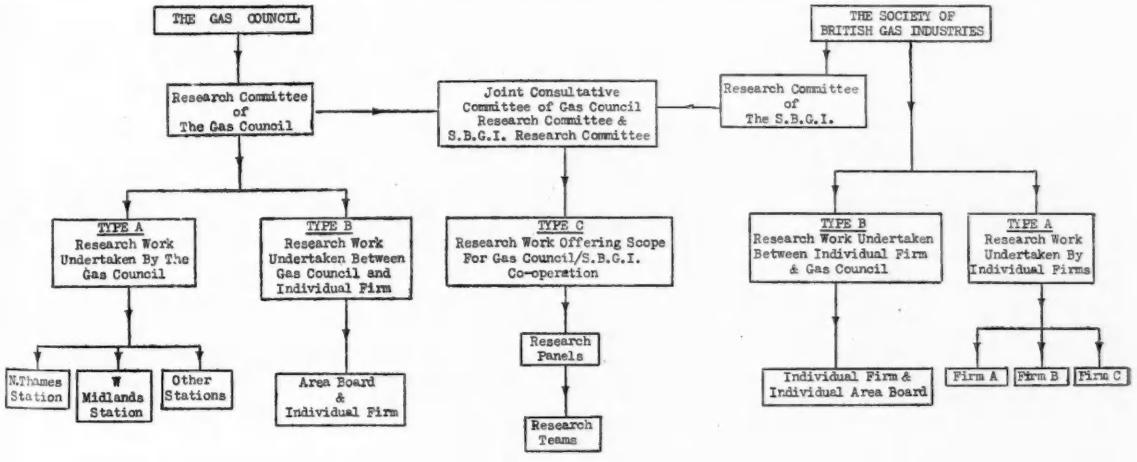
A student's common room

GAS is succeeding in bringing present day comfort to the historic past in the South Western Gas Board's Weston-super-Mare sub-division. Resting within the shadow of Wells Cathedral is Vicars' Close, known as the oldest complete street in Europe. The work of Bishop Ralph, of Shrewsbury, dating from the fourteenth century, this street now houses theological students, and work is in progress to install gas fires in bedrooms and common rooms. In the majority of cases the gas fires are replacing electric fires, and this has necessitated the renewal of gas service; hence the operation of service layers in the road outside the property as indicated in one of our photographs.

The street is built on a mathematical principle, tapering as it climbs, and this gives an illusion of greater length. The local guide book records that originally the houses (42 in number) were half of their present depth, merely containing two rooms. There were no kitchen facilities, the vicars, or singing-men, being all bachelors and feeding in community.

In the background of the photograph may be seen the Chapel, at the top of Vicars' Close. It is the work of Bishop Ralph, the upper storey being added by Bishop Bekynton as a library. The whole building is alive and beautifully cared for, thanks to constant use by members of the Theological College. Formerly the Vicars-Choral possessed life-long rights vested in their jobs and houses, but in 1934 the Cathedral Measures Act changed this ancient privilege, and today the Ecclesiastical Commissioners are owners of the property.

PLAN FOR GAS INDUSTRY RESEARCH


THE GAS COUNCIL
Research Committee of The Gas Council
Joint Consultative Committee of Gas Council Research Committee & S.B.G.I. Research Committee
THE SOCIETY OF BRITISH GAS INDUSTRIES
Research Committee of The S.B.G.I.
TYPE A Research Work Undertaken By The Gas Council
TYPE B Research Work Undertaken Between Gas Council and Individual Firm
TYPE C Research Work Offering Scope For Gas Council/S.B.G.I. Co-operation
TYPE B Research Work Undertaken Between Individual Firm & Gas Council
TYPE A Research Work Undertaken By Individual Firms
N.Thames Station
W Midlands Station
Other Stations
Area Board & Individual Firm
Research Panels
Research Teams
Individual Firm & Individual Area Board
Firm A
Firm B
Firm C

We described on pages 581-582 last week the scheme for co-operation in research between the Gas Council and the Society of British Gas Industries. Here is the diagram showing how this planning is designed to work. The scheme embraces research work respectively by the Gas Council and by individual member firms of the S.B.G.I.; research undertaken by mutual arrangement between the Gas Council or area boards and one or more individual firms; and research offering scope for collaboration between the Gas Council and the S.B.G.I. on a group basis.

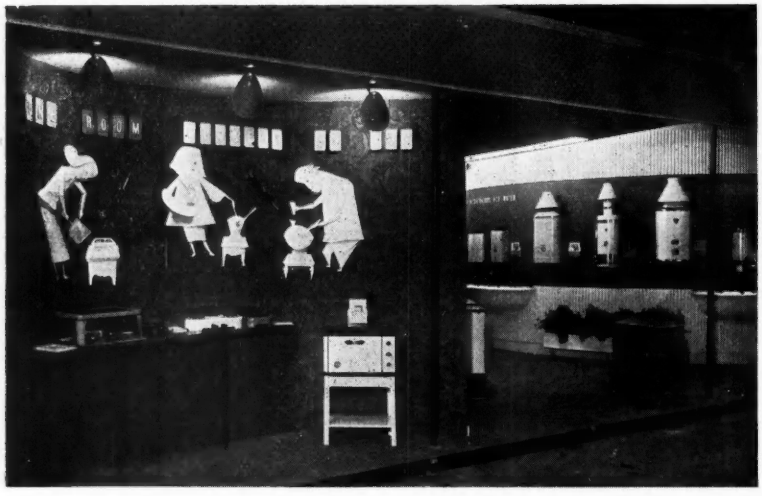
The Gas Council Says It With Flowers

at the Ideal Home Exhibition at Olympia

THE whimsical sun composed of a corona of open parasols which hangs in the eastern end of Olympia's Grand Hall beams upon a scene as picturesque and fantastic as could have been devised by any combination of Disney, Dali, and Lewis Carroll. Under a lime green sky is perhaps the best of the Ideal Home's many successful disguises for this great glass and steel building. The scene is as delightful as it is unusual and he would be hard to please who could find no pleasure in the spectacle. The melodies of famous military bands float out from an aerial bandstand, its pinnacle like a huge green cactus with a white flower, lighted from within. Alas, the illusion of fairyland is dashed all too soon. Notwithstanding the dream-like appearance of of the hall, only the slightest probing beneath the crust reveals a pandemonium of competition, with salesmen sparring for an opening, and the Great British Public pursuing its gargantuan haphazard course.

To the many novelties claiming our attention we turn a blind eye and a deaf ear. Enchanting as is the prospect of inspecting the consort of King Tutankhamum's bedroom, our task is to present to *Journal* readers an impression of this great exhibition from the viewpoint of the fuel industries, and gas in particular. In one sense, the task is simple in that there is an immense amount of gas interest to be seen; in another, very difficult, because selection is the harder.

For the gas industry this is perhaps the most important Ideal Home ever. There is an extensive gas and coke section, embracing no less than 13 stands, excluding the large Gas Council exhibit, and despite the difficulties which beset appliance sales in these difficult days, the industry is magnificently represented. We have no hesitation in stating that for all members of the gas industry concerned with the sales side, a visit to Olympia is highly desirable. And it would be a pity if the engineer and chemist held themselves aloof from this sales arena, for even those profits supposedly made in the retort house are dependent on the industry's effective contact with the British housewife.



Another view of the Gas Pavilion.

As is only right, we commence our review with a word about the Gas Council's pavilion. In its usual position in the Grand Hall (it is number 67) opposite its electrical counterpart, the stand has several features in common with last year's exhibit. Like the 1951 stand it does not rely for its effectiveness on an elaborate novelty feature. There are no tableaux (broadly speaking) or similar distractions. Its aim, if we interpret it aright, is to present a more or less 'straight' stand, displaying gas appliances as attractively as possible but without any frills. Also like last year's stand it is of open design, permitting visitors to examine exhibits at close quarters, which appears to us to be good psychology. A third resemblance to the 1951 stand is the emphasis on flowers, particularly those of the mechanical variety which open to reveal various miniature scenes. Then it was 'Spring is in the Air'; this time it is 'Bouquet for Housewives.'

The bouquet theme is, we are told, a tribute to the women of this country who by their homemaking, economy and ingenuity contribute so much to the comfort and well-being of their families. It is typified in a central floral bouquet in which flowers open their petals to disclose amusing little domestic scenes. On Press Day we found some difficulty in spotting these mechanical flowers since they were surrounded by others of a static nature, but this may well be rectified.

In the centre of the stand is an animated tableau showing Cinderella at the ball, a little reminiscent of those penny-in-the-slot machines on the pier. It is flanked by an old and new cooker to emphasise the before and after theme. For the rest the stand is very pleasing and embraces some most attractive wallpaper.

The appliances have been chosen with care and all have one feature in common —they are designed to operate on a minimum of fuel consumption. Among them are a number of more or less new items. Attracting considerable atten-

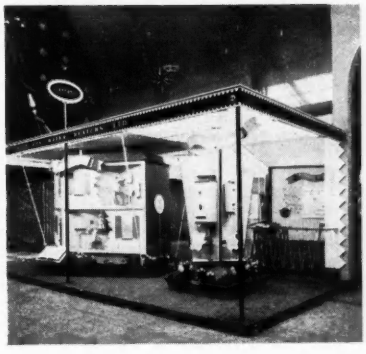
tion is the Cannon A.125 with the visual grill, warming closet, and automatic ignition, and this has a strong rival for good looks in the Radiation 3158 range with its deep grill, warming closet, central griddle plate, and cooking timer. Other recent arrivals among the cookers are the Flavel 68, the De La Rue G.4, the Stoves X.1, and the Master 24. All of these are in the moderate price range and embrace most modern refinements.

Two new refrigerators are on show—the Astral which can be installed as a wall fitting of 1½ cu. ft., and the Gasel, which is making its first real public appearance after a lengthy development period; the latter is of 4½ cu. ft. capacity with a trigger knee-action handle. Other appliances of recent origin are the Morley gas-heated, electrically agitated washing machine, and the Crossland 8505 portable fire.

Other Exhibits

And so to the rest of the gas section. A new product of **Ascot Gas Water Heaters, Ltd.** on stand 45 is the jigged wall fitting, designed to cut the cost of installing the smaller sink heaters. The jigged wall fitting consists of a back plate drilled with screwholes for fixing to a wall, and two integral pipeways, one for gas and the other for water. These services are brought in at one side of the fitting and connect with two orifices which project horizontally and are so spaced that the linings on the heaters will fit them.

The supply pipes and the jigged wall fitting are set into the wall of a house when it is built, and plastered over. The capped ends of the pipes just protrude from the plaster. When a heater is to be fitted at any time the caps are removed and the heater bolted on, a job which takes about 20 minutes and leaves the wall undisturbed.



The Ascot Stand

Also on the Ascot stand is a full range of heaters, particular emphasis being given to the 715 balanced flue multipoint. The stand is tied in with the Gas Council's bouquet theme and has a model open-fronted house with excellent moving figures depicting Ascot heaters in use.

Also making ingenious use of working models is the **Parkinson Stove Co., Ltd.**, which features the Renown cooker on stand 42. Three of these model cookers, smaller than the size of a pint milk bottle are shown in three kitchen scenes, to emphasise the important part which the Renown's three exclusive features play in daily kitchen activities. In the first kitchen a housewife shows how the cover top lifts to reveal a plate-rack, and how, when in a closed position, the top gives an effective working surface in the kitchen. In the second kitchen, a housewife shows how the oven door opens down, thus giving a convenient 'table,' and the housewife in the third kitchen demonstrates the advantages of the flash ignition system. Two further working models in specially designed display cases are on show, in addition to actual full size Renown cookers. In one sense the Parkinson stand plays a dual role—public show without and trade show within—for in the comfortable lounge is the new Coronation cooker described in the *Journal* last week, and the as yet unpublicised Paragon, which is a popular price model with many impressive features.

Pride of place in the display of **Radiation Ltd.** (stand 61) has been given to the New World 3518 range which boasts a multiple-heat grill, large griddle or simmering plate situated between the four hotplate burners, a large oven with drop-down door and a warming or low temperature oven. Other cookers on show include the 3458 double oven range with six hotplate burners and large capacity grill with three simmer positions, the 345 table top cooker, and the well-known 1840 and 4180 models.

Four hearth type fires, one portable, and two panel type models are displayed. The last two, the Wenlock and S.P.756 models, have been specially designed for new housing and have proved very popular. The Malmesbury hearth type fire

GAS SERVICE

SPECIAL CONFERENCE NUMBER

Extra issue

Over 2,000 delegates have registered for the Gas Service Conference (March 11-13). For these delegates and for the many thousands of others interested but unable to attend we are publishing a Special Number of "Gas Service". A bumper issue (100 pp. approx.), it will give a complete review of the Conference and will be lavishly illustrated. Papers and discussions will be reported fully and the Conference and Ideal Home Exhibitions will be discussed in topical fashion. Contents also include a unique article on the history of firms exhibiting at the Conference. The Souvenir Number of "Gas Service" will cost 2/-, postage 3d.

Note especially—subscribers to "Gas Service" will not receive this issue free and the Conference will not be covered by the April issue of "Gas Service". We repeat THIS IS A SPECIAL NUMBER.

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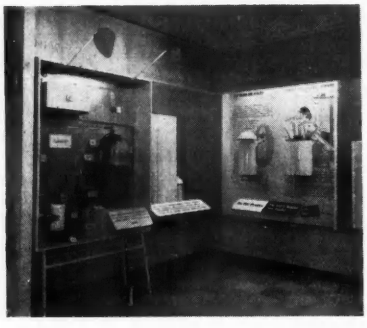
is shown in a small section of living room, indicating the warmth and comfort of this fire. All fires are fitted with dress-guards to British Standard specification. Space heaters and water heaters are included on the stand, and a C.12 Circulyn circulator is connected up to a storage cylinder (fitted with an economy valve) housed under a standard sink, to show how the complete installation can be fitted into a confined space. In this section, too, there is a glass demonstration unit, showing the flow of hot water from the Circulyn circulator into the storage cylinder and the operation of the economy valve. The cold water is chemically treated so that it is blue in colour and when hot is colourless.



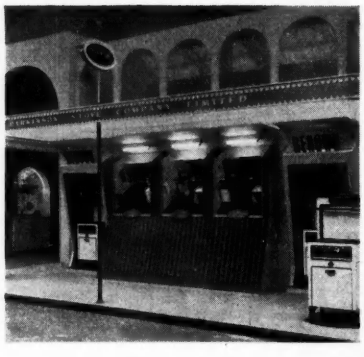
A Corner of the Radiation Exhibit

Cannon Iron Foundries, Ltd., have concentrated heavily on their new A.125 cooker and the model is shown in several colour finishes with a great deal of pomp and circumstance. Under heavy panoplies the appliances look handsome indeed and housewives are no doubt impressed with the cooker's many advantages. Most striking, of course, is the eye-level grilling unit which folds into a housing forming part of the splashplate. The oven has a single back burner lighted from the front by flashtube, and thermostatic control is by a newly designed liquid phial thermostat, the phial being located in the bottom flue where it is not visible, enabling the oven to be sectioned and thermostatically controlled in reduced size. Below the oven is a storage drawer or warming chamber, and the hotplate incorporates two high speed and two medium burners with press-button ignition.

On stand 85 the **Vulcan Stove Co., Ltd.,** have an admirable display of gas cooking and heating apparatus. Attracting much interest from housewives are the cookers with the patent glass door which are guaranteed shockproof and fireproof, retain full oven-heat, and do not steam over. A free-standing cooker, mounted on totally-enclosed plinth, the Vulcan has many other impressive features, including heat-regulator, closing cover-plate, safety taps, and clean, compact design. Alternative fittings include enamelled door, choice of different oven capacities, and a variety of finishes. The exhibit includes gas fires, boiling rings, grillers and hotplates.

Of particular interest on stand 84, where **Stoves, Ltd.,** are displaying their products, is the new X.1 cooker which includes a number of technical refinements and specialised fitments. For example, the flue vent is embodied in the wallplate, thus eliminating wall discolouration and saving space. Grease taps have been eliminated, all edges bevelled, and rounded corners adopted for the grill chamber and oven interior. In appearance the cooker is neat and attractive. Also on show is the new No. 284/286 cooker, and the newly designed Argyll hotplate No. 166, together with the well-known Newhome No. 280 cooker and Silo and Silo Matchless gas fires.

A nice link with the Gas Council's 'Bouquet for Housewives' theme is provided by **Sidney Flavel & Co., Ltd.,** on stand 68, where a charming Georgian structure gives a reminder of the firm's 175 years' experience and the plentiful flowers on the stand are 'supported' by attractive brochures on the covers of which are coloured bouquets. Two types of cooker are shown, the small two-burner Imp and the well-known Flavel 68. The latter has a very attractively styled bow front and a particularly large oven. A self-closing door on concealed hinges, stabilised oven heat control, and safety locking taps are other features of this cooker. Other appliances shown include the Fulham finned back boiler grate and Summa gas attachment, the Metro grate, and the gas fires shown are the Camberwell, the Panel, and the Vek background heater.



Parkinson Stove Display

General Gas Appliances, Ltd., on stand 60, have as their principal attraction the impressive Raymond cooker which with its press button ignition, interchangeable hotplate components, and concealed plate rack must be the answer to many a housewife's prayer. Other interesting features include a safety device which prevents the gas supply to the oven being turned on unless the door is open (similarly the gas cannot be turned off unless the door is first opened), and liquid type thermostat combined with the gas cock. Other appliances on show include the C.27/16 cooker, the Junior General, the C.R. fire, and Portans portable fire.

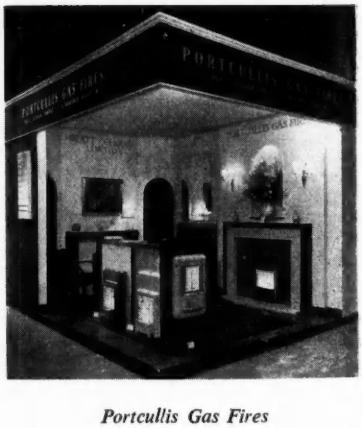
Long noted for handsome exhibition stands, **Bratt Colbran, Ltd.,** gain, on stand 81, further laurels with an excellent display of Portcullis high efficiency gas fires, both hearth and panel types. The Chevin solid fuel continuous burning grate, which can be fitted with a boiler for hot water supply, is also shown.

On stand 79, **Ewart & Son, Ltd.,** provide a demonstration of their M.210 multipoint water heater with an output of 3½ gallons per minute, raised 40°F., which provides an instant and constant hot water service, without pre-heating up or storage, to bath, basin and sink taps. The M.75 sink water heater, which can be fitted on the wall and connected direct to the hot taps or used as a single point provided with a swivel spout, is also on show, together with the No. 30 single point water heater.

Hurseal, Ltd., on stand 80, provide an admirable display of hot water cylinder jackets and insulation materials and, of course, their well-known gas radiators and oil-filled towel rails. These items are backed up by an impressive range of domestic boilers, temperature controls, etc.

Well in keeping with the 'Bouquet' theme, **R. & A. Main, Ltd.,** on stand 57, have an exhibit with a colourful striped decor which displays their many appliances to good effect. The stand is simple in design but very effective, and the visitor has every opportunity to study the finer points of the various cookers, fires, space heaters, and water heaters. The last named are, of course, available in both storage and instantaneous types, while the gas circulator supplements existing water heating facilities.

Last but by no means least in the gas section, **Master Cookers, Ltd.,** have given their stand (No. 78) an unusual treatment indeed. Rodney Thomas must have had Picasso in mind when he executed the modernistic 'backcloth' which is no doubt giving visitors something to think about. When they recover from the shock they will no doubt pay plenty of attention to the Master B.M.20 which is the lowest priced cooker for its size at the exhibition. Particular features of its unusual design include a large oven, removable spillage bowls, self locking taps, height adjusting stabilisers, and light weight trivets.



Portcullis Gas Fires

Summing up, we have no hesitation in stating our conviction that this is the best Ideal Home to date—the best for the organisers, the public, and certainly for the gas industry.

We shall refer next week to a number of further features of gas interest at the Exhibition which space prevents inclusion in this issue.

IN PARLIAMENT

'A Hundred Feet of Ugliness'

OUR old friend the gasholder has on many occasions in the past caused acrimony in high places, and we have no doubt it will do so on many more occasions in the future. On March 4, however, it reached the giddy heights of the House of Commons when it formed the subject of one of those vitriolic little arguments which often break out at Question Time.

The holder concerned is one which the North Western Gas Board proposes to erect at Farnworth—a Lancashire borough of some 29,000 souls—and which the Member for the Constituency (Mr. GEORGE TOMLINSON) stigmatised as '100 ft. of ugliness.' Was the Minister of Housing and Local Government aware, asked Mr. Tomlinson, that the proposal to erect a 100-ft. gasholder in the centre of Farnworth contravened every principle of town planning, and if he would therefore review the decision to allow it. On what grounds was the decision to allow the erection of the 100-ft. gasholder in the centre of the borough of Farnworth taken; had the Minister considered a communication from the Farnworth Borough Council protesting against his decision to allow the erection of a 100-ft. gasholder in the centre of the town; and what reply had he sent to the communication?

Mr. HAROLD MACMILLAN said that the decision was taken by the county council as local planning authority. They were influenced, the Minister understood, by the fact that there was already a 50-ft. holder on the site, and that to keep the new one down nearer the height of the existing one would involve considerable expenditure of money and materials. He would not feel justified in reversing this decision which was taken more than two years ago, and he was writing accordingly to the borough council, from whom he had heard, and was sending Mr. Tomlinson a copy of his letter.

The Member for Farnworth returned to the attack with a series of 'supplementaries.' Was the Minister aware, he asked, that this holder was sited within 50 yards of the town hall, would dominate the centre of the town and render any question of the re-development of that part of the town impossible? Mr. MACMILLAN said he fully appreciated the Member's feelings, but where the planning authority had given its consent and where such a very heavy additional cost in materials and labour would be concerned in altering that decision he did not think it his duty as Minister to interfere.

Undaunted, Mr. TOMLINSON asserted that every official associated with town planning, either locally or on the part of the authority itself, had condemned the scheme, and only the Tory-dominated planning committee of the county council was insisting upon it. This attempt to drag a political red herring into the argument found the Minister unsympathetic. Mr. MACMILLAN did not think Mr. Tomlinson ought to make such an imputation; nor did he feel that the difference between the existing 'stack' (a curious term for a gasholder) of one height and another made as much difference as all that.

But Mr. TOMLINSON was still unsatisfied. Why had the Minister gone back on a decision of the previous Minister at last to reduce the height of this holder by 25 ft.? Did he consider that 100 ft. of ugliness was better than 75 ft.? Mr. MACMILLAN evidently feels, however, that ugliness, like beauty, is a relative term. He did not think that a reduction of 25 ft. of ugliness was worth £50,000 and the 270 tons of additional steel and 440 tons of additional cast iron which would be needed to build on the alternative site.

THE LONG AND SHORT OF IT

Mr. TOMLINSON: *'Do you consider that 100 ft. of ugliness is better than 75 ft.?'*

As a Parthian shot, Mr. TOMLINSON naively enquired whether they were to take it that in future no industrial town that was built without planning years ago was to derive any advantage from town planning today. Mr. MACMILLAN: 'No, Sir.'

If it did nothing else, this little argument appears to have offered one contribution to human learning—to wit, that ugliness can be assessed financially and is capable of being measured in terms of £2,000 per foot height. Here is an invaluable addition to the linear tables contained in our school-books.

Gas Board Members

Descending from the dizzy height of a 100-ft. gasholder to more mundane topics, we record a question by Mr. F. J. ERROLL (Altrincham and Sale), who asked the Minister of Fuel and Power what steps he was taking regarding those persons whose appointments to the North Western Gas Board terminate during the present year.

Mr. GEOFFREY LLOYD, in a written reply, stated that the terms of appointment of the persons concerned expire towards the end of next month, and he would shortly be considering the action to be taken in accordance with the powers conferred upon him by the Gas Act, 1948.

Efficient Utilisation of Coal

A debate on March 7 ranged over the whole field of coal utilisation on a Motion urging the need for comprehensive measures for the better use of our principal raw material.

Mr. M. PHILIPS PRICE (Gloucestershire, West), who admitted that his only qualification for moving a Motion of this nature was a Science Degree of Cambridge University, said that domestic coal consumption in 1938 was 45 mill. tons; it was reduced in 1950 to only 32 mill. tons by a system of rationing. Yet gas, which consumed an equivalent of 19 mill. tons in 1938, consumed 26 mill. tons in 1950—an increase of 30%. Electricity, which consumed an equivalent of 14 mill. tons in 1938, consumed 33 mill. tons in 1950—an increase of 110%. In other words, domestic consumers seemed to have taken an increase in consumption of 50% in gas and 250% in electricity because they were forced by coal rationing to increase their consumption of gas and electricity by the use of cookers and heaters.

The open fire was only from 20% to 25% efficient; it wasted anything from 75% to 80% of its heat. Gas was much better at 45% to 50%, while in the process of creating electricity only 20% of the heating and power capacity of the coal passed out into the current. Although by various new methods it was possible to raise that figure to 25%, the fact remained that electric current was an extremely wasteful way of using heat. Many local authorities were installing various types of coal stoves whose efficiency ran to 50% or 60%, and Mr. Price suggested a levy on coal to build up a fund to subsidise these fuel-saving appliances and make them cheaper.

Mr. GERALD NABARRO (Kidderminster), who seconded the Motion, brought all three Members for Stoke-on-Trent to their feet almost simultaneously when he referred to the black and begrimed buildings of that city and to the sooty pall hanging over it, much of it contributed by inefficient coal burning in the industrial establishments. The Member for the South Division of the city (Mr. ELLIS SMITH) asserted that Trentham was one of the finest spots in the country. The Member for the Central Division (Dr. BARNETT STROSS) pointed out that no industry in the country was so rapidly making progress today without coal altogether as the pottery firms. And the Member for the North Division (Mr. EDWARD DAVIES) observed that they could do very much more in the way of progress in that direction if they had the capital equipment, in terms of an extended gasworks, to give additional gas supplies to manufacturers who were only too anxious to use these new methods.

Mrs. JEAN MANN (Coatbridge and Airdrie) should have given a fillip to the sales of pressure cookers by her eulogistic references to these appliances as savers of gas and electricity. She instanced a young housewife whose gas

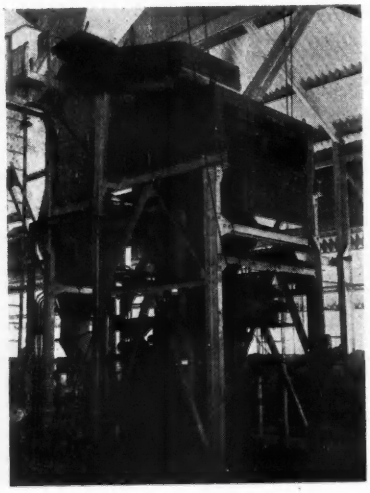
(*Concluded on page 647*)

INDIA'S NEW SYNTHETIC FERTILISER FACTORY

Power-Gas Plant to Produce 350,000 Tons of Ammonium Sulphate a Year

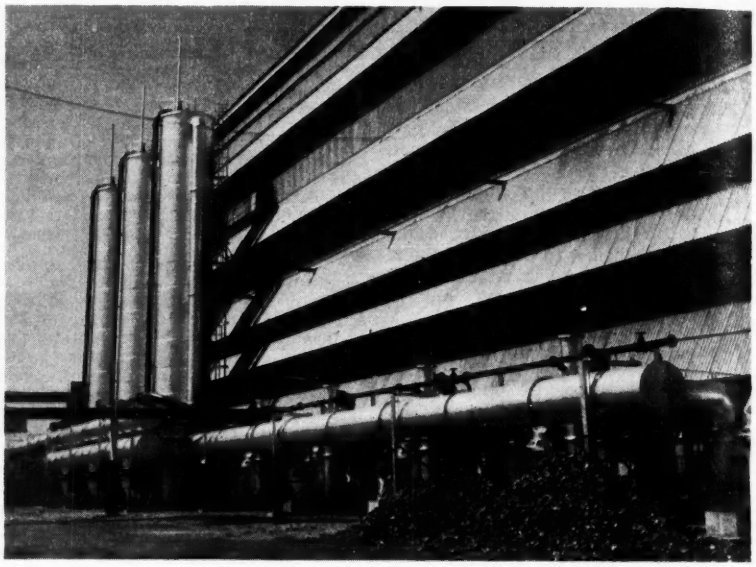
PROMPTED by the need to increase foodstuffs production the Government of India invited a technical mission from the United Kingdom to investigate the synthetic nitrogen fertiliser requirements of india and to submit a report on the production of 350,000 tons of ammonium sulphate a year. A senior member of the Power-Gas Corporation, Ltd., was seconded to the mission.

It was eventually decided to establish the proposed fertiliser factory on the bank of the Damodar River at Sindri because of the availability of coke and coal, while the necessary gypsum could be brought from the north-west of India.



Overhead coke bunkers.

A contract was let to the Chemical Construction Corporation of New York for the design and engineering of the plant, while the organisation, procurement of plant, and cordination of erection of the scheme was placed in the hands of the Power-Gas Corporation. To fulfil the obligations under the contract the Power-Gas Corporation set aside a department at Stockton-on-Tees. In addition a new office was opened in Calcutta under the direction of a manager with three or four picked men from Stockton to train and advise the Indian staff recruited locally. The Power-Gas Corporation was also allocated a direct contract as designers, manufacturers, and erectors of the semi-water gas plant, while its subsidiary, Ashmore, Benson, Pease & Co. was awarded a sub-contract for the design, manufacture, and erection of the 'Krystal' evaporator plant.



This photograph gives an idea of the impressive size of the Sindri plant.

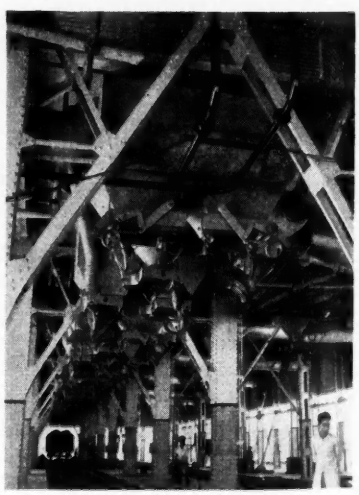
The gas plant at Sindri consists of eight generator units and with seven generators working is capable of producing 33 mill. cu.ft. of gas daily when gasifying suitable coke, a typical analysis of the gas being: CO_2, 6.5%; $CO+H_2$, 69.8%; CH_4, 0.8%; N_2, 22.9%.

The Bihar coke has a high ash content, and nearly 500 tons will be needed daily when operating at this load. The net amount of steam required after allowing for production in the boiler jackets will be somewhat more than 500 tons daily.

Coke Handling

Run-of-oven coke is delivered either to a storage dump or to overhead bunkers at the crushing and screening plant where it is reduced to a size of 3 in. to 4 in. before delivery to the gas plant. The breeze separated here and at a later stage immediately before charging to the generators is collected together and used elsewhere. The sized coke is delivered by conveyor to overhead bunkers at the gas plant from which it is conveyed by automatic cyclic coke chargers, which also screen and weigh the charge, to each of the eight water gas generators. Steam is generated in the boiler jackets at 20 lb. per sq. in. and is available for use in the gasification process. Provision is made for the addition of waste heat boilers should they prove economical under future conditions.

The gas-making cycle is automatically carried out by a hydraulic controller provided for each generator to ensure uniform production at constant efficiency with a minimum wastage of time during the cycle for valve operation. The hydraulic system operates at a pressure approaching 1,000 lb. per sq. in., thus reducing to neat proportions the size of equipment necessary for operation of each individual valve. Interlocks are incorporated to prevent a dangerous sequence or combination of valve operation. A generator can operate continuously except for a short standby period once every shift for emptying the ash boxes and examination of the fuel bed, the cycles of the various generators being 'stepped' to provide continuity.



View beneath the plant.

The gas is delivered from the gas collecting main to three gas washing and cooling towers where it passes upwards countercurrent to a stream of cooling water. Nearly 200,000 gal. of cooling

water is in circulation through the gas washing system and is recirculated through a settling tank and over a cooling tower so that only a relatively small make up quantity is necessary. Equipment is provided for the addition of soda ash solution to the system for partial removal of H_2S at the same time as the gas is washed and cooled, according to a patented wet washing process. The cooled washed gas is delivered to a gasholder of ½ mil. cu.ft. capacity which acts as a buffer to absorb any variation in the rate of gas production and rate of delivery through subsequent processes. The holder is of the spiral guided type, and alarm and shut down equipment is installed to operate when the contents reach approximately 90% or, on the other hand, drop to approximately 10% of its full capacity.

From this holder the gas is delivered by boosters through iron oxide purifier filter boxes which in order to reduce the solid impurities and remaining hydrogen sulphide content of the gas to a degree suitable for carbon monoxide conversion. When the oxide contains 35 to 45% sulphur it is removed from the system altogether and replaced by fresh material.

Throughout the whole plant special attention is paid to instrumentation, so that operating personnel may be in a position to run the plant with the highest degree of efficiency.

The CO conversion and CO_2 removal sections of the plant, while forming part of the complete synthesis gas producing installation such as the Power-Gas Corporation has supplied in many parts of the world, is in this case installed to the designs of the engineers of the Chemical Construction Corporation.

Fuel, Heat, and Power Auditing

JUST as the auditor keeps track of the financial income and expenditure of an industrial undertaking, so it is the function of the fuel technologist to ensure that every unit of heat generated is accounted for in the thermal balance sheet of the industrial process in which it is used.

During the past three years this operation of fuel, heat, and power auditing has been successfully applied at 125 works in this country, and the statistical information so collected has enabled a fuel saving of 20% to be effected in the average works, though in some cases the saving has been well over 50%. These fuel audits are conducted, at the invitation of the firms concerned, by the Fuel Efficiency Advisory Service of the Ministry of Fuel and Power. The necessary instruments are conveyed to the site in mobile testing units, the work and equipment of which are to be described in a paper to the Institute of Fuel on March 18.

The meeting, open to all, will be held at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 5.30 p.m. A limited number of advance copies of the paper are available (price 3s. 6d. to non-members of the Institute) from 18, Devonshire Street, Portland Place, W.1.

EASTERN SECTION I.G.E.

MR. T. C. BATTERSBY (Divisional General Manager, Watford) presided at a well-attended meeting of the Eastern Section of the Institution of Gas Engineers at the Town Hall, Peterborough, on February 28, the chief purpose of which was to discuss the Report of the Sub-Committee of the Institution of Gas Engineers on Unaccounted-for Gas.

Three new members of the Section were elected—Mr. J. Woodcock (Gorleston and Great Yarmouth), Mr. F. Harvey (Grimsby), and Mr. G. E. Thomas (Industrial Gas Engineer, Watford Division); and the members accepted with regret the resignation of Mr. J. Green (Wisbech) and Mr. H. R. Wimhurst (Barton Mills).

The Chairman said it was a source of satisfaction to all the members of the Section that Mr. Sydney Smith had been appointed Chairman of the East Midlands Gas Board, in succession to Mr. H. F. H. Jones. Mr. Smith had been a member of the Section for some years and they would all join in wishing him well in his new appointment.

Mr. J. F. Leakes (Cromer) was presented with his Higher Grade Certificate in Gas Engineering (Manufacture).

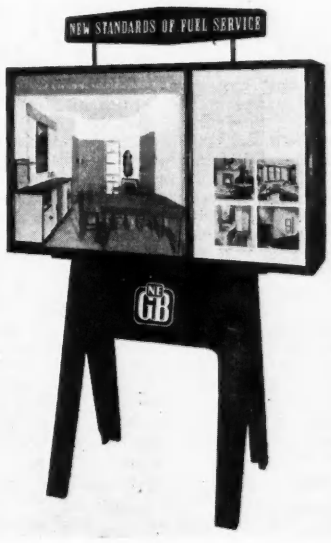
It was unanimously agreed to support the Management Committee's recommendation to the Institution that members of the Section who had retired from active duties should be allowed to continue their membership on the basis of a half-rate subscription.

Forthcoming Meetings

Arrangements were announced for a visit to the St. Albans works on March 26, and for the Spring Meeting of the Section, to be held at the Grand Hotel, Sheringham, on June 9 and 10. The provisional programme comprises golf and bowls on the Monday morning; meeting in the afternoon; reception in the evening attended by the Chairman of the Sheringham Urban District Council; business meeting and Chairman's Address on the Tuesday morning; followed by the official luncheon.

The Report of the Sub-Committee on Unaccounted-for Gas was introduced by Lieut.-Colonel J. A. Gould, a member of the Sub-Committee, and a vigorous discussion terminated with a vote of thanks proposed by Mr. F. A. Rhead, seconded by Mr. C. E. Grimwood. A report of the discussion will be published in a later issue of the *Journal*.

MODERN DISPLAY



One of two double sided displays which have been produced by the North Eastern Gas Board and which are on show at the head office. They are adapted from the Gas Council's Domestic Gas Handbook for architects and builders, in which examples of efficient coke-gas installations are shown in four different designs of modern 3-bedroomed houses. The kitchens in each case are modelled in 3-dimensional exaggerated perspective, besides which there is an accompanying documentary panel showing the plans and photographs of typical gas and coke installations in the remaining rooms. The displays are attractively finished in walnut veneer and the kitchens illuminated by a concealed strip light.

PARLIAMENT—(*Concluded from p. 645*)

bill was no more than 29s. for three months of good cooking by this method.

The Minister of Fuel and Power (Mr. GEOFFREY LLOYD) capped Mrs. JEAN MANN'S fuel saving story with another—concerning the remarkable case of the lady, who lived in Scotland, who used electricity only while she found and lit the oil lamp which was the normal source of illumination. The Minister went on to announce three concrete measures to increase the efficiency of coal usage: (1) Government loans at commercial rates up to a total of £1 mill. to be made this year to suitable firms lacking capital to finance fuel economy schemes; (2) materials will be made available for the manufacture of 900,000 improved domestic heating appliances, as against 700,000 last year; (3) a new country-wide fuel efficiency campaign.

The House agreed to the Motion without a division.

Council House Tenants on the Hirst Wood estate, Shipley, sent a petition to Shipley Council last July requesting the installation of modern ranges or tiled fireplaces in their homes. The tenants of 117 houses on that estate have just received information that the Council has decided to replace their old ranges with modern tiled fireplaces and also to supply new gas cookers. Those with a separate cooker already may elect to have only the fireplace installed. The weekly rent will be increased by 1s. 4d. for the fireplace and 1s. for the cooker. The Council has already obtained permission to borrow £8,500 for the proposed installations, and it is hoped to complete the improvements during the next 12 months.

CONSULTATIVE COUNCILS

Increased Efficiency in North Thames Area

THE way in which operations in the Chief Engineer's department can produce economies, in particular through increased efficiency of operation, formed the subject of a talk by Dr. J. Burns at a meeting of the North Thames Gas Consultative Council held at the Westminster City Hall on February 28—Councillor EDWIN BAYLISS presiding.

By far the biggest operational cost, commented the Chief Engineer, was the cost of raw material, upon the quality of which their results must be very largely dependent. He was sorry to say that the quality of coal in particular was not nearly so good as it was before the war. The North Thames Board received two types of coal—Durham and Yorkshire. The former suffered a marked deterioration during the war and reached a level of 10.6% inerts in 1946, which level was maintained more or less unchanged until April, 1951, after which it deteriorated still further to 11.2% inerts compared with 8.5% in 1938. Yorkshire coal was of very fine quality before the war, with an inert content of 7.2%. But this coal deteriorated even further than Durham coal, and after some sign of improvement in 1947 fell back again last year to a figure of 10.3% inerts.

They were thus receiving very much less coal substance than they did before and, at the same time, were paying much more for it. Simply as a result of the increased inert content they now had to buy about 150,000 tons more per annum for the same gas output, which cost the Board at present prices £598,000. From this they must, of course, deduct the credit from the increased coke and tar production amounting to £317,000.

A Gradual Improvement

In the year 1938 the former Gas Light and Coke Company was producing 81.9 therms per ton. During the summer of 1951, which was the latest period for which figures were available, the Board was operating at a level of three therms per ton below the year 1938. These three therms per ton were accounted for entirely by the increased inert content, but Dr. Burns thought it worth while pointing out that the gradual improvement effected since the end of the war, even 0.1 therm per ton, meant a saving of 6,300 tons of coal over a whole year, or a net saving of £9,500.

As regards C.W.G., the Board used approximately 25 mill. gal. of oil per annum, and here, too, there had been a deterioration in quality. On the other hand, they had improved the efficiency of oil conversion from 1.20 therms per gal. in 1946 to 1.28 last summer. Even so comparatively small an improvement as 0.03 therms per gal. over last year's working meant a saving in a full year of 660,000 gal. of oil, or approximately £34,000. The best modern plant would give an efficiency of 1.35 therms, and it was hoped that new plants which they were putting in at the present time would reach this efficiency.

Similarly with blue water gas there was an improvement of 10.2 therms per ton of coke over the last five years. Operations last summer saved 3,500 tons of coke as compared with the previous summer, equivalent to approximately £14,500, or for a whole year about 9,500 tons or £39,000.

It might very well be asked why they did not scrap the older units and concentrate entirely on new and more efficient plant. This was, in fact, going on all the time; but gas plant was, generally speaking, of very high capital value and built to last up to fifty or sixty years. For example, nine of the retort houses at Beckton, though modified and improved from time to time, were built in 1870. Moreover, on account of the very high capital cost of new plant, and the consequent depreciation charges, it sometimes paid to retain older plant at lower efficiency.

Dr. Burns went on to explain to the Council the methods used for determining how much new plant would be required. The industry's load was not constant; it varied from season to season with temperature. But if one plotted or tried to correlate atmospheric temperature with gas output one found there was not very good agreement. Two factors affected this agreement: (a) the time of the year or season; and (b) the time lag associated with an increase or decrease in temperature. One could, for instance, get two days of exactly the same atmospheric temperature, one in June and the other in January, but the gas consumptions on these two days would be very different. They corrected for this by taking the normally to be expected temperature for every day of the year, which was the average temperature which had occurred on each day in the year over the last 100 years, and, instead of taking the straight atmospheric temperature, they took the mean of the straight atmospheric temperature with the normally to be expected temperature. That got rid of the seasonal effect.

The next point was the time lag, which was well demonstrated by the fact that the highest gas consumption did not occur on the coldest day of the spell but on the day after the coldest day. Therefore, instead of taking the straight atmospheric temperature for the day in question they took the mean of two days. Then, by averaging this temperature with the seasonal temperature they got a temperature for each day of the year which, if plotted against gas consumption, would give a very good relationship. This enabled them to predetermine just how much gas would be required for any day in the year—and with good weather forecasting they were able to pre-determine the consumption for three or four days ahead. All this work was carried out in a central control room at Westminster, which was connected by teleprinter to each big station. The control room staff estimated each morning how much gas would be required for the day ahead and instructed the various works to make the required amount.

By this means they had some choice and were able to use the most efficient gasmaking plants in preference to others which might not be so efficient and which were called upon only in extreme peak load conditions. They still had to estimate any change in the level of the base load, which did not come on suddenly but only as a gradual trend. All indications of change in load levels at the present time were in an upward direction.

Dr. Burns went on to deal with the Board's methods of deciding what was the best type of gasmaking plant to install. The capital costs of coal gas plant were highest. C.W.G. plant was next, though higher in operational costs, while peak load oil gas plant had a very low capital cost but very high operational costs. Thus coal gas plant would be installed for all-the-year-round operation. Where they were likely to use a plant for not more than 250 days per annum it paid to put in C.W.G.; and where, because of the load they were likely to use a plant for 80 days per annum or less, it paid to put in peak load plant.

Siting of Plant

Then came the important point of where to put these plants and how big they should be. In the case of coal gas plant, this was determined finally by the cost of coal. Some 70% of the North Thames Gas Board's coal came by sea and 30% by rail. Seaborne coal into riverside stations could be as much as 21s. per ton cheaper than the most expensive rail-borne stations. Therefore, it paid to put their coal gas plants on riverside stations, even allowing for the increased mains charges to carry the gas to the periphery of the district, the pumping costs, and the cost of transporting coke to the outer districts. It paid, too, to put down big units, and it could be shown that a unit of 7½ mill. cu.ft. per diem gave a saving in overall costs of approximately 1½d. per therm over a 1 mill. per day unit.

The siting of C.W.G. plant was also important as here they were dependent upon good supplies of coke and oil. They brought oil into Beckton in ocean-going tankers, and there were ample supplies of coke there which were difficult to market because of Beckton's position, so the most economic site for the 26 mill. cu.ft. C.W.G. plant was at Beckton. The peak load oil gas plants were sited near to the periphery districts.

In conclusion, Dr. Burns said that provided the cost of coal did not increase any further and they had no further inflation, they could look forward to the future, so far as gas production costs were concerned, with some degree of equanimity.

(*Continued on page 653*)

At the conclusion of Dr. Burns's address a number of questions were asked by members of the Council—among them, was there any limit to the price of gas? Dr. Burns said the price of gas must, of course, depend on the cost of raw materials, but if such costs remained static at their present level, then as new and more efficient plant replaced the old there would be a slight tendency to produce gas at a lower cost. On the other hand, the high capital cost of the new plant must be carried by the gas price. Replying to another question on means of securing greater efficiency, Dr. Burns referred to the improvements which could be effected by installing gas turbines. Other methods of gas production were also envisaged, such as complete gasification.

A member questioned the wisdom of concentrating production into large units having regard to vulnerability in the event of war. In reply, Dr. Burns said this was a very difficult matter. They must either plan for peace or plan for war. It was quite true that they could disperse their production units—but the cost of so doing would be enormous. Coal supply to a number of small works would cost much more. It would also be difficult to find enough skilled labour. They had therefore come to the conclusion that they must plan for peace, but in doing so they must at the same time take into account what should be done to circumvent the effects of war.

Forcible Entry

It was reported that a question had been asked in the House of Commons regarding the Council's recommendation to the Minister on this subject (see *Journal* for February 20, page 469). The Chairman said he felt confident that the Minister was in sympathy with the terms of the Council's resolution and would give the matter full consideration. But it would be appreciated that any amending legislation that might be introduced must necessarily cover other public services. It was not simply a question of amending the Gas Act alone. Pending legislation, they could assume that the North Thames Board would, if occasion arose, follow the lines of the Consultative Council's resolution.

The Chairman reported briefly on a recent meeting with the Minister of consultative council chairmen, observing that the Minister seemed fully satisfied with the way the councils were operating.

The remainder of the meeting was devoted to considering consumers' representations and complaints, one of which concerned the refusal of the Gas Board to install a point for a gas poker owing, apparently, to shortage of steel, which obliged them to refuse fresh installation work other than for new housing and urgent repairs.

Southern Plea for Tariff Uniformity

THE question of special rates for special loads was raised again at a meeting of the Southern Gas Consultative Council at Reading on March 5, presided over by ALDERMAN J. W. MOORE. Reference was made to the case of the Berks County Master Bakers' and Confectioners' Association, whose deputation was received at the December meeting (as reported in the *Journal* of December 12, p. 680), and also to criticisms by the Hampshire and East Dorset branch of the Cinematograph Exhibitors' Association concerning the termination of contracts for special rates for gas supplied for gas boilers for cinema heating.

Minutes of a special meeting held *in camera* on January 9 indicated that the Council had discussed (*a*) a memorandum on the tariffs in operation in other areas, and (*b*) a statement on the Southern Gas Board's policy of giving reductions in price of gas only according to quantity consumed, irrespective of the purpose of its use. A resolution supporting the Southern Board's policy had been carried with only one dissentient. A further proposal to submit the memorandum on the tariffs of other boards together with the Council's resolution supporting the policy of the Southern Board to the Ridley Committee and to ask for appropriate action to secure uniformity of policy and to obviate preferential treatment in one part of the country and not in another had been carried unanimously.

High Level Guidance

Arising out of these minutes Alderman Moore told the Council that the Chairman of the Southern Gas Board had promised to take the matter up with the Gas Council. Asked if the Gas Council, as the central organisation of the gas industry, was likely to recommend a policy to be followed by all the boards, he said his own view was that the boards would continue to go their own ways until some guidance from a high level was given to them. Whether the Ridley Committee would persuade the Gas Council to give such guidance he was unable to say, but he thought the majority of the boards had no intention of falling in with suggestions without receiving definite instructions to do so.

Regarding the criticisms of the Cinematograph Exhibitors' Association, attention was drawn to a report in the *Bournemouth Daily Echo* of January 18 which stated that 'local cinema managers who wrote to the Southern Gas Consultative Council asking for a deputation to be received because, they alleged, the Gas Board had arbitrarily cancelled agreements made before nationalisation, have received no reply, and intend to take up the matter with local M.P.s.' Continuing to refer to the annual meeting of the branch organisation, the report recorded that at a previous meeting it had been reported that a local exhibitor had installed a gas boiler in his cinema as an economical proposition. When the gas industry was nationalised his agreement had been cancelled and under the new charges the gas boiler was no longer economical. Councillor H. P. E. Mears, Chairman of the branch and also a member of the Consultative Council, was reported to have remarked: 'When this body asks for a deputation to be received it at least expects the courtesy of a reply'; and Councillor G. Bravery, Vice-Chairman of the branch, had said: 'The Consultative Council was supposed to represent the public and not the Gas Board, which it seemed to be representing at the moment.'

The Chairman explained that, more especially in the Western Division, special prices had been offered to a number of people in former days but, as the members of the Council were already aware, all those discounts had been discontinued and the Council had agreed to the price now charged. He had written and explained all this to the Association and had stated that in view of the facts he could not see that any useful purpose would be served by receiving a deputation—a very different matter from refusing to receive a deputation. The answer to the allegation about not replying to correspondence was that every letter had been replied to.

Mr. C. King, Secretary of the Council, read the whole of the correspondence.

The Chairman said that on the question of breaking agreements he had consulted Mr. W. H. Haddleton, Western Divisional Accountant, who had stated that he had looked into the contracts and found they provided for certain prices to be charged until further notice; they could not be considered as being contracts in perpetuity. Due notice had been given of the new prices. 'We have not been discourteous in any way,' said the Chairman, 'and I have stated quite definitely that I would ask you whether you think we should receive a deputation.'

In answer to a question as to why the matter had not been before the Council before, Alderman Moore said numerous letters were received and answered—with satisfactory results—and he had assumed that the Council did not wish to be troubled with every item of correspondence that arose.

After discussion a resolution was carried unanimously to the effect that if, in view of all the facts, the branch still desired to send a deputation the Council would be prepared to receive it at the June meeting.

Oxford Gasworks

The Chairman formally reported that, as already announced, the Board had decided not to appeal against the refusal of the Oxford City Council to grant planning permission for the extension of the existing gasworks at Oxford. 'In fairness to the Board,' said Alderman Moore, 'there is one matter with which I think I should deal. Councillor Brown, Chairman of the Planning Committee of the Oxford City Council, is reported in the Oxford newspapers as having expressed some grievance at the fact that the Board had discussed its proposals with this Council before submitting them to his Committee. It is my duty to point out that this Council is a statutory body appointed under the Act

and the Board was under an obligation to discuss its proposal with this Consultative Council before proceeding with it. In my opinion the Board was acting in a correct manner in approaching us in the way it did, and therefore I consider that Councillor Brown need have no grievance.' The Board, he added, would do everything possible to see that there was an adequate supply of gas at Oxford, but if it was not successful the responsibility for the failure would, in the view of the Board, rest with the Oxford City Council and not with the Southern Gas Board.

Early Statement Sought

After full discussion a resolution was passed expressing the hope that at the earliest opportunity the Chairman of the Board would give the Council an authoritative statement of the Board's policy and its plans for meeting what was undoubtedly a difficult situation. It was also suggested that Lord Leathers, Secretary of State for the Co-ordination of Transport, Fuel, and Power, might be asked what he proposed to do about it.

A proposal was submitted for the holding of all future meetings of the Council in the conference room at the Board's headquarters at Southampton, but it was ultimately agreed to continue the present practice of meeting alternately at Bournemouth and Reading.

South Eastern Price Increase

THE proposed increase in the price of gas in the South Eastern Area came as no surprise to members of the Consultative Council since it had been announced in the national Press some days prior to the Council's meeting at the Caxton Hall, Westminster, on March 4. However, the Chairman of the Board, Mr. W. K. Hutchison, in an address to the Council, clearly showed that the Board had no other means of meeting the new increase in coal costs. In the unavoidable absence of the Chairman of the Council, the Deputy Chairman, Mrs. D. N. RATHBONE, presided.

Since vesting day, said Mr. Hutchison, the Board had been faced with continually rising costs, by far the most serious of which was the cost of coal. Towards the end of last year they knew that coal must cost more following a wage award to miners, but they expected that the average increase would be about 5s. per ton on the pithead prices. Unfortunately, they learned on New Year's eve that the Board's coal bill was to be increased much more than this, and the pithead price of the type of coal delivered to them would go up by an average of 8s. 1d. per ton.

As a consequence of this and allowing for freight increases their coal bill was up by £1¼ mill. per annum. This was a matter of great concern, and they were not yet able to agree with the Coal Board the basis of valuation which had led to this result. After taking into account revenue increases other than for gas, the Board was faced with the necessity of finding about £1,833,000 in a full year. Their proposals for increasing the price of gas were estimated to yield £1,063,000, leaving £770,000 to be absorbed.

Mr. Hutchison then explained briefly what was proposed. There would be an increase of 1d. per therm on the flat rate prices of gas, except those which were now 21d., which would not be increased. In the Metropolitan Division there would be an increase of 1½d. per therm in the 'follow-on' charge to consumers on the two-part tariff. The average weekly increase to a domestic consumer would be about 2½d. There would also be some alterations to their industrial and commercial tariffs which were now available over the whole of the Board's area and which, while giving effect in their prices to the circumstances of these classes of users, were, they believed, on a sound economic basis.

It might help the Council to see the problem with which the Board had been faced in a clearer light, continued Mr. Hutchison, if he outlined the way in which prices had moved since vesting day. To take first of all the principal raw materials of gas manufacture, the price of coal had increased by about 25% and that of gas oil by 40%. In addition, considerable increases in wages and salaries had had to be met, amounting to an increase of 18½% since vesting day. Against these increases they might set the price of gas which, after taking account of the increases now before them would have risen by 16⅔% on the prices ruling at vesting day.

Put in another way, increased costs had altogether added up to 4d. a therm, of which, even after the new prices of gas had become fully operative, only 2½d. a therm would have been passed on to the consumer in the price of gas.

Growing Economies

As he had told them, they were left with £770,000 of the latest increase in costs to be absorbed instead of being borne by the consumers. They had always tried to restrict the effect of increased costs on the price of gas, and £1 mill. had already been saved one way and another in the Board's working—by a reduction in the rate of interest on capital stock and by savings arising out of increase in the sales of gas and gas appliances. But above all they had concentrated on increasing the efficiency of work in all branches of their business, which not only relieved each therm of some part of the impact of rising costs, but also aimed to give a better service to consumers. It was on this aim of greater efficiency and economy that they would particularly rely to absorb a substantial part of the £770,000.

What economies they would be able to make could not be precisely assessed at present, and some of them were dependent upon their being able to carry out a programme of capital work. This might be seriously restricted by the diversion of steel to the rearmament drive. The Board would do its utmost to meet the national need for the greatest economy and would further the interests of consumers by giving the best possible service at the lowest possible price. But even after all this there would almost certainly be a substantial reduction in the free surplus shown in the last accounts.

In conclusion, Mr. Hutchison referred to the progress they were making towards a uniform price structure. They now had four different flat rates and seven block tariffs, as well as the optional two-part tariff inherited from the South Metropolitan Gas Company. This was a very different picture from the many variations in price and tariff ruling at vesting day.

The price increase will take effect from the first meter reading on or after April 1.

Protest to the Minister

Members of the Council questioned Mr. Hutchison on a number of points arising out of his statement and subsequently passed a formal resolution accepting the Board's proposals and thanking Mr. Hutchison for his presence and his explanation of the position.

The following resolution was unanimously adopted:

'That this Council having taken note of the increases in the price of coal which have to be met by the South Eastern Gas Board from January 1, 1952:

(a) Protests that these increases in coal prices have been made without the gas industry having adequate notice and an opportunity to make representations.
(b) Calls attention to the fact that the gas industry has been required to meet a higher percentage increase in coal prices than any other industry.
(c) Considers that this apparent discrimination in price against the gas industry causes hardship to the consumer of gas and is not calculated to lead to the most economical and efficient use of coal.
(d) Asks for greater co-ordination between the three branches of the Ministry.'

Arrangements were approved for the annual election of District Committees for office during the year commencing June 1, 1952; and details were received of the Board's proposals for further mainlaying programmes, and of changes in calorific value of gas supplied in certain areas in the Kent County Division.

The next meeting of the Council will be held at the Caxton Hall, Westminster, S.W.1, on April 1, at 2.15 p.m.

Coke Oven Plant Contract.—John Lysaght (Scunthorpe), Ltd., is shortly to install a battery of 23 additional coke ovens at its Normanby Park iron and steel plant. The contract has been placed with the Woodall-Duckham Vertical Retort and Oven Construction Co., Ltd.

PSYCHOLOGY AND PLANT OPERATION

By H. C. WIDLAKE,
Plymouth (Coxside) Station, South Western Gas Board.

Paper to the Western Junior Gas Association.

THE subject I have chosen concerns those peculiarities of the human character which, for want of a better label, are known as psychological traits. It is unfortunate that this term, once held in a sort of perplexed respect, should have been abused and debased by quacks, charlatans, and well meaning fools. All too often, to-day, is the term used to excuse, or even to justify, behaviour which an earlier generation, in its simple wisdom, would have corrected in a somewhat primitive, yet effective, manner.

Most engineers prefer to use the term 'human element' in reference to deviations from that line of conduct which a man is required to observe in the performance of his duties. Such deviations may not necessarily be blameworthy; they often reveal hidden qualities of judgment and leadership.

The word 'individual' is often used in reference to characteristics of a psychological nature, and it is a commendable word in relation to this subject. Many great services to mankind have been rendered by people of outstanding individuality, so outstanding in some cases as to cause them to be deemed insane by their less brilliant contemporaries.

The individualist is a natural species of the human race, and any social order which aims at the elimination of the individualist is rotten at the core and must, in time, achieve its own destruction. He cannot be destroyed; he can only be suppressed, and in that process powers which could benefit mankind may well be diverted to a less worthy objective.

Some men possess the quality of individualism to such a degree that they are extremely difficult to work with; they are a disturbing factor in a team, and are fated to walk alone along whatever paths they may elect to follow. So much for the extreme individualist; he is essentially a psychologic problem, capable of doing great good, or great harm, and usually lives a life apart from his fellows.

Peculiarities of Character

My theme concerns those peculiarities of character which operate in a detrimental manner in relation to a man's occupational worth and which emphasises the need for careful judgment in the selection of men for duties of a responsible nature. Such peculiarities may be due to two causes, either singly or in association. A man's early environment, the influences under which he has spent the impressionable years of his youth, may be responsible for flaws of character which can be rectified by improved occupational conditions and by example. On the other hand, these characteristics may have their origin in some obscure hereditary influences which often miss one generation and reappear to exercise a baleful influence on the next. No corrective measures can prevail against such unknown and unpredictable forces which, acting after the manner of a catalyst, may forge faults due to environment into unalterable characteristics.

We all make mistakes, irrespective of our type, our status, or our occupational responsibilities, and in the making of them we learn, and the lesson teaches us to be tolerant in our judgment of others. We should accept the fact that none of us can be certain of the manner in which we should react to some circumstance of sudden emergency, as our reactions are governed by obscure factors of which we are not conscious. It is always possible that an unheralded emergency may reveal evidence of latent peculiarities of character, good or bad, which are not apparent under normal conditions.

Mistakes are usually due to inexperience, impetuosity, failure to give a matter sufficient consideration, and a disinclination to consult people who might, possibly, be helpful. It is not the mistake that counts so much as the rate at which its consequences develop. An administrative error, for instance, can often be perceived and corrected before it has become productive of ill results. A drawing office mistake stands a good chance of being spotted and rectified in the course of the many stages through which a design must pass before it takes a physical form.

Much more important, as regards far reaching results, are mistakes which imperil the continuity of plant operation, as there is rarely a saving time lag between the act and its consequences. It is obvious that faults of character which would not attract attention in the case of a man engaged on manual labour cannot be tolerated in positions of responsibility.

If a plant operator makes a mistake, consequence can follow consequence in a bewildering sequence which can only be appreciated by those who have had the handling of machinery. For that reason, I have always held the plant operator in considerable respect; his job may be a comfortable one, his duties may not be arduous, but his responsibilities are heavy. His good qualities are not always appreciated, he is often ill chosen for his job, and he only comes into the limelight when things go wrong.

Take No Chances

If an irregularity is due to a plant fault as distinct from an operational error the time lag safeguard is sometimes in evidence if the operator is sufficiently experienced and alert to recognise the warning symptoms. He may be an optimist who reflects 'it may clear itself, whatever it is,' but the careful man takes no chances. I can best emphasise the folly of this attitude by quoting a personal experience.

As a shift engineer on a mixed traction and lighting plant, I was running three 500 kW alternators on an evening lighting load. Each engine had its own multijet ejector condenser fed from a nearby estuary. About 15 minutes before one set was due to be shut down, by reason of a falling demand, an engine lost about 2 in. of vacuum. I made the required electrical adjustments, slightly overloading the two sound sets, and reflected 'probably a mussel lodged in one of the ejector nozzles, no more load coming on, and less than 10 minutes to go before I can take her off,' and I took the chance. My imagined mussel turned out to be a flatfish which ended up by masking three nozzles and throwing the engine to atmosphere. Several embarrassing things happened in a remarkably short time. My subsequent interview with the chief left me with the conviction that, biologically, I belonged to a lower form of life than did the unfortunate flatfish which had compelled me to shed load in two sizable districts. It was unfortunate that most of the members of the town council resided in those districts. The temporary cessation of supply was inevitable, but my fault lay in the fact that I had not signalled another set up to speed as soon as I was aware of an irregularity. A fine distinction, but a sound judgment.

Plant operators play an important part in the life of a modern works and their jobs are coveted. The selection of men to train for these positions calls for very careful consideration, and it will be noted that much of my subject-matter refers to that type of employee from whose ranks plant operators are usually recruited. There are certain elementary qualities which are essential in candidates for such positions. They should be of sober habits (I use this term in the wide sense), they should be men of good repute, and they should enjoy the respect of their fellows. These are simple qualities, easily ascertainable, but suitability, from a psychological point of view, is by no means easy to determine.

It may be accepted as a fact that character is formed (or malformed) by environment, depending on the worth or otherwise of the undertaking which men serve. A works which has progressed along lines of careful planning under good management will, in the main, produce men of a worthy type who respect one another and the service in which they are engaged. Conversely, an ill managed backward works, progressing after the manner of a Victorian patch-work quilt, is more likely to produce men of an inferior type who are loyal to little except their own self interest, and the working of the plant is tainted by those who serve it.

The personnel on any works may be described as a diversity of creatures, each with his own particular inhibitions, his own sense of personal values, his own attitude towards his fellow employees—and, let us not forget, his own personal anxieties, worries, and responsibilities.

At one end of the scale we find the gifted prevaricator who is always in trouble and who trusts to a glib tongue to confound his critics, and at the other end the man of simple worth who is inspired by an honest urge to serve his kind. Who could venture even to guess the number of intermediate personalities between these extremes?

For instance, we find the individual who is discontented with his lot but makes no effort to improve it. He is usually loud in belittlement of the management but lacks the courage to leave a service which he effects to despise. We find the works Punch and Judy exponents, a pair (or pairs) of men between whom exists some long standing childish animosity and who indulge in frequent noisy quarrels, always with an audience. If these people are worth the keeping, they should not be employed in the same team or on the same shift rota. We meet the habitual boaster who, having proclaimed the fact so often, really believes that he is indispensable and who has no regard for any authority save that which a misguided management may allow him to exercise. Then there is the Peter Pan type whose attitude towards his fellow workers is tainted by childish jealousy. He lives in a condition of mental turmoil, brooding over fancied wrongs. Ishmaels of this type are often only children or the product of unbalanced unions. They are objects of sympathy, but that does not alter the fact that they are unpleasant nuisances.

Noisy Buffoons

These types cannot be regarded as dangerous, so well are their peculiarities known and ridiculed; they are simply noisy buffoons who do little harm except to set a bad example to impressionable youngsters.

Another problem type of quite a different class is the maker of alibis who anticipates his operational fault by reporting imaginary defects in the plant he serves. When some irregularity does occur, these reports are carefully quoted as evidence of his keen perception, and the operational fault is thereby cleverly masked. He is a costly individual, as expense is incurred in the investigation of non-existent faults. It will be appreciated that a report must be followed up, although there may be grave doubts as to the veracity of the person who makes it. This man is a dangerous type and is responsible for the 'unaccounted-for happening' in many industries.

Objectionable characteristics may not be much in evidence so long as things are working smoothly, but when an irregularity does occur these flaws of character can give rise to such confusion as to make it impossible to determine the exact cause of the occurrence. Thus is born another 'unaccounted-for happening' to join the collection of similar skeletons in the managerial cupboard.

It is not easy to attach a frequency rate to matters of this sort, as sufferers regard them in the light of discreditable episodes which are best forgotten. This is a figure of speech; these matters are not forgotten; the memory of them lingers to haunt responsible officials, with the dread that 'it may happen again.' When matters of this sort are under examination, it is often the case that information of vital importance is withheld for reasons of stupidity, fear of consequences, or a distorted sense of loyalty towards fellow workers.

Against these flaws of character there is no definite remedy so long as human nature remains as it is. Most of us believe that a civilising influence has been at work for nearly 2,000 years, but the ideals that make for Utopianism are still far distant, and we must perforce fall back on the readily available palliatives—namely, selection, training, mechanical supervision, and, to a limited extent, education.

Men to whom it is intended to entrust the care of important units of plant should be chosen with a careful regard to health, temperament, and natural aptitude. It is, admittedly, difficult to ignore the claims of seniority, but there is always the risk that selection on that basis may result in modern equipment being served by men whose experiences and sympathies lie with an earlier and cruder order of things.

This should be the task of men who have themselves been properly trained as distinct from having just 'picked it up' and who, moreover, are capable of imparting their knowledge to others. The ability to do a job in a proper manner does not always qualify a man to teach others, however well disposed he may be towards the learner. The duration of the training period is often all too short. On important steam plants, for instance, it is no unusual thing for a man to have to serve some years as a cleaner before he has a chance of promotion to the job of driver, although he will have been in constant attendance on the driver in connection with duties about the main engines and auxiliary plant.

Mechanical Supervision

When the investigation into an irregularity requires the evidence of plant attendants, it is necessary to accept statements with some degree of reserve. The relations between men accustomed to work together are rarely impersonal, and statements are often lacking in some material fact. Even if personal bias, reservation, and misrepresentation could be eliminated from such matters, the fact remains that sudden emergencies induce a state of excitement and tension which tends to impair the powers of observation and, in consequence, to detract from the value of the personal report. The need for some form of mechanical supervision is indicated, and this can be furnished very effectively by the installation of graphic recorders.

Conscience has been defined by a cynic as 'the small voice which warns us that somebody is looking,' and it would be difficult to define the functions of a recorder in words more apt. There is about the graphic record a finality which cannot be revoked or controverted. The pen has, literally, 'written and moved on'—it cannot be 'lured back to cancel half a line.' This fact is fully realised by plant attendants, and when recorders are installed duties are carried out with a closer regard to exact results than would otherwise be the case. These instruments are far more effective than many forms of human supervision. In contrast to the conflicting factors which discount the value of personal evidence, the information afforded by a recorder chart is impersonal, unbiased, and definitely related to a time basis, furnishing a true record of working conditions and of sins of omission and commission.

Audible alarms, suitably applied, play an important part in safeguarding the working of plant, but they can defeat their own object in that they relieve the attendant of a great measure of personal responsibility. It is desirable that the range of these devices should be such as to ensure that the warning note is audible to more than one person.

In much the same way, and for a similar purpose, that a modern business system aims at making it impossible for a single individual to carry out a fraudulent transaction, so should an audible alarm system be designed to acquaint certain key men with the fact that some irregular condition had come about. Each person so warned becomes automatically a party to the circumstance in the event of concealment or failure to take the necessary steps.

(*Continued on page 661*)

The advantages of education in relation to the duties of plant operators are best expressed in general terms. Education is certainly a great influence in the stabilisation of character, and it is obvious that a man who has received, and retained, an ordinary elementary education is better able to assimilate imparted knowledge than is one who lacks that advantage. His mind is better disciplined, his judgments are more balanced, and he is better fitted for his daily task and for his duties as a citizen.

Men in responsible charge of plant are generally of mature age, their school days are long past, and they will probably have forgotten much of what they learned; except in rare instances they are ill-fitted to undertake a regular course of study. It is desirable that men of this type should acquire a certain amount of technical knowledge bearing upon their particular task, and fortunately this need is met by the admirable series of technical lectures sponsored by the Ministry of Fuel and Power. It is a pity that it should have required a national crisis to point the need for such measures. Had these facilities been made generally available years ago, the national interests would have been better served and the crisis might have been avoided.

An essential qualification for a plant operator is that he should have a natural aptitude for that work. I hold the view that all men (excepting the mentally afflicted) are born with a gift for rendering some form of service to the community. A man can only be described as a misfit in relation to some particular task or tasks for which he proves to be ill-fitted. He may have mistaken his vocation, or as is often the case, he may be the victim of parental folly that deemed his youthful earning power to be of greater importance than his occupational happiness.

A Natural Gift

A man's aptitude for a particular task is a natural gift and not a synthetic product of some educational process. I am reminded of some of the fine types of men I have known who, although lacking in education, were to be found in running charge of costly and important plant. When the sudden emergency arose, these men seldom made mistakes but, steadily and instinctively, took the appropriate steps to deal with the situation. Their responsibilities were not relieved by the host of protective devices with which so many modern plants are furnished, but they enjoyed one great advantage over their present-day counterparts. They were happy simple men of a generation that thought for itself and their powers of judgment were not vitiated by that atmosphere of strain and unrest which prevails to-day.

The palliatives I have mentioned are simple measures born of the dictates of ordinary common sense; they can do much to correct flaws of character which originate in an unfavourable environment. These faults can usually be countered by better occupational conditions, and this is where managerial influence comes into the framework of my theme. Those of you who occupy administrative positions know a great deal about the curious working of the human mind and, subconsciously, you make allowances for it in your judgments.

Others among you who are approaching the threshold of managerial responsibility have yet to meet the incidence of the human element, and you belong to a generation which tends to reject any hypothesis that is not supported by some degree of accepted scientific fact.

It may be many years before science succeeds in establishing the cause of strange peculiarities in human behaviour, and in the meantime our job is to face the fact that these peculiarities do exist and are a serious factor in occupational life.

If, as distinct from our small parochial interests, we survey the state of the world to-day, we get a depressing picture of backward nations snarling at each others heels like a lot of ill-conditioned curs; the restraining influence of a once powerful nation having been relaxed, the pack, mistaking tolerance for weakness, simply run wild leaving a trail of death and ruin in their tracks. Where could we find a better full scale example of the working of the baser elements in human nature?

In our small circle we find much the same baleful influences at work, and the vaunted 'education for all,' which should be an uplifting factor, appears to aggravate rather than to check mischievous impulses.

That deference which was once shown to men in positions of authority is becoming a pleasant memory of the past, and it is difficult to imagine what sort of attitude will take its place if the relations between master and man are to be kept in their correct perspective. That one time deference was, in fact, an instinctive throw-back to an age of ecclesiastical privilege and patronage when the only people possessed of education were the monks and the remainder of the population, even the great nobles, were illiterate. The best we can expect is that, providing a worthy example is set, the old instinctive deference will be superseded by respect that varies according to an official's ability, his character, and his reputation for fair judgment.

Not by Education Alone

Just as, in the past, poor management has been responsible for many flaws of character, so in the present can good management do much to retrieve the errors of a past generation. Education will play its part in the readjustment of these relations, but let it be remembered that a man's worth is measurable not so much by the extent of his acquired knowledge as by the degree of effort he had made to acquire it. The ability to handle formulæ or to speak a foreign tongue is not in itself the hallmark of education; nor do academic qualifications fit a man for a position of authority unless he is endowed by nature with the qualities of common sense, honesty of purpose, tolerance, and understanding.

The professional engineer is not, and cannot hope to become, an expert psychologist, but in his everyday contacts with the diversity of creatures under his control he may find that example and common sense can go a long way towards bringing about an improved standard of conduct in men who have the reputation of being 'peculiar.'

There has never been a time in our history when the human touch counted for so much as it does to-day. The tension of the times in which we live, the all-pervading sense of insecurity, exercise a baleful influence on all of us, and that fact should always be taken into account when a man's occupational behaviour becomes the subject of critical investigation.

There is no hard and fast rule for dealing with difficulties which have their origin in faults of character; only individual treatment can deal with faults which are themselves of an individual nature.

A general line of approach would take into account the past history of the works, the background, and, what is of particular importance, the quality of the key men. Key men are the medium through which the worth of the management is revealed to the body of the workers, and men in these positions should, so far as can be determined, be free from any apparent flaws of character. The presence of the square peg in the round hole is too common to be dignified by the word 'problem.'; if certain responsible work is found to be in the hands of unsuitable men, a wise management will gradually, and without the infliction of any personal hardship, replace them by men of more stable character. Unless a position is really serious, it is best that the process of 'sorting out' should be gradual, and it will be more effective if carried out by a stranger whose judgments cannot be influenced by ties of long association and personal relationships. If this policy is followed consistently, in conjunction with a careful scheme for selecting and training young men to fill responsible positions as they fall vacant, it will be found that the problem type of worker will eventually be confined to positions in which flaws of character are not of particular account.

In the past the subject of relative education often gave rise

to feelings of bitterness and jealousy on the part of men who found themselves at a disadvantage by comparison with those who enjoyed advantages which were denied the sons of working class parents. Today, legislation ensures that education is within the reach of any man who has sufficient ability and resolve to grasp the opportunity for acquiring specialised knowledge. If he fails in that endeavour, the fault lies in some circumstance for which he cannot blame society. In a changing world many barriers are being thrown down, but if all differences of race, language, and creed were eliminated there would remain the difference between the educated and the uneducated man. The two types are complementary and their combined effort is essential to the communal good.

DISCUSSION

The **President** (Mr. T. W. Clapham, Bristol) said it was interesting to remember men who could so easily be associated with the types referred to by Mr. Widlake. Instrumentation did, to a certain degree, help to clear up the unaccounted-for happenings. In any enquiry it was most essential to obtain the whole truth and to obtain it the question of punishment must not arise. So many times it was only possible to obtain 75% of the truth—not through any wilful concealment but rather due to those things left unsaid as unimportant and not connected to the unaccounted-for happenings by the staff concerned.

Mr. A. B. Horsfield (Bristol) said he was struck by the passage: 'The ability to handle formulæ or to speak a foreign tongue is not, in itself, the hallmark of education . . . .' In his opinion the operative word was commonsense and should be underlined. This type of education could not be found in text-books and must be sought in the school of experience.

Mr. H. H. Brown (Exeter) referred to the excellent educational facilities now available and pointed out that unhappily there was no mention of character in any of these schemes. Educational degrees were not sufficient and he would say that the man with, say, A+B+C+D qualifications only would be less advantageously placed than the man with A+B qualifications+character. Members would not go far wrong if they remembered it was wrong to ask others to carry out any task they themselves would be incapable of performing.

Mr. J. W. Dean (Plymouth) said the paper provided a lead to those engaged in the industry at a time when it was undergoing so many changes.

Mr. L. A. Ross (Bristol) commented that the most difficult part of training was when a trainee would not see or admit his faults—which, of course, was very often a natural reaction.

Mr. B. G. Hawkings (Plymouth) said that, assuming an operator should be fully conversant with his plant, he would be pleased to know how Mr. Widlake would set about his training.

Mr. Widlake replied that, in relation to one particular type of occupation, technical classes might for many reasons be ineffective. If a man had an aptitude for the proposed job, it was better that technical knowledge should be imparted to him by the officials of the undertaking. Thus his tuition would be concentrated on the work required of him.

Mr. J. D. Butler (Plymouth) felt that promotion by seniority would promote better plant maintenance, possibly due to a greater loyalty from an older man. The American team spirit appeared to create good results.

Mr. Widlake said that if there was a well founded doubt that a senior man might not be suitable for promotion, it should be remembered that to promote him in spite of that doubt might be to do him a grave disservice. Such a man could be profitably and happily used in a position where worth and loyalty were essential qualities. He thought the American system differed from their own in that they did not attach sufficient importance to the personal touch.

Mr. F. G. Craxford (Taunton) felt that insufficient stress was laid on the workman's own personal anxieties, and under the present system, with a restriction of the personal angle, he would be interested to learn Mr. Widlake's reaction to a welfare officer.

Mr. Widlake agreed that a welfare officer was essential to the cultivation of the human touch, but men would not take strangers into their confidence. The welfare officer should be taken from their own ranks, a man whom they knew and trusted and who knew them and their work.

Mr. P. A. Draper (Torquay) remarked that no mention was made of the attitude the young and junior engineer should adopt in his dealings with workmen. Some advocated an official attitude and others a warm approach, while a further school talked of a fence between staff and workmen.

Mr. Widlake suggested they should trust rather to the 'velvet of the scabbard' than to the blade it sheathed. In other words, they should not crack a whip which it might be very difficult to use. If sincere effort to cultivate good relations by example and a human approach failed, then, of course, disciplinary action must be invoked. As regards the fence, this certainly did exist; it was built by mistrust, for which past generations of employers were responsible.

Mr. S. B. Jones (Barnstaple) felt that most men required an individual approach, and this would vary considerably.

Mr. P. Trevelyan (Bath) said there was the man who knew what the pen should write, as instance a producer recorder chart showing fires cleaned when in actual fact the producers had not been touched.

Mr. Widlake said he had met a 'faker of charts,' but not in the gas industry.

Mr. K. G. Pemberton (Torquay) instanced the night stoker who, when his make was bad, manipulated the station meter index. He felt the author would probably agree that in such cases the responsibility should be that of the official in charge rather than the workman. In his experience he had found some of the so called 'bad men' invaluable in an emergency; it was essential that both sides understood each other thoroughly.

Mr. Widlake agreed that the old poacher very often made the best gamekeeper.

A vote of thanks to the author was proposed by **Mr. O. Pincock** (Weston-super-Mare) and seconded by **Mr. L. A. Ross** (Bristol).

COMPANY NEWS

THOS. W. WARD

Interim ordinary dividend 5% (same). (Final for 1950-51 was 10% to make 15%. On January 31, 1952, a deferred dividend of 5% was paid.)

CORK

After providing £10,000 for depreciation, £3,200 for mortgage debenture redemption and paying an interim dividend of 3% (which absorbed £3,037), balance of profits amounts to £6,161. It is proposed to pay a final dividend of 3% (making 6% for the year) which will absorb £3,037, leaving a credit balance of £3,124 to be carried forward.

DONALD MACPHERSON

Net profit to October 31, 1951, £70,070 (£105,109), after tax £118,000 (£132,000). To reserves £25,000 (£50,000); final dividend 40% making 65% (same), forward £81,229 (£77,040).

GAS PURIFICATION

Dividend of 8% for 1951 (dividend 8% and bonus 2%). Net trading profit £17,794 (£17,313), including approximately £2,500 (£13,000) due to realisation of reserves in oxide on loan account. Net profit after tax is £6,115 (£6,798).

RADIATION

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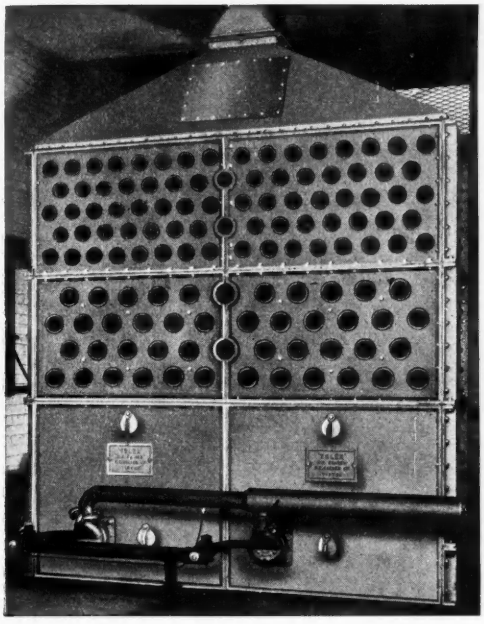

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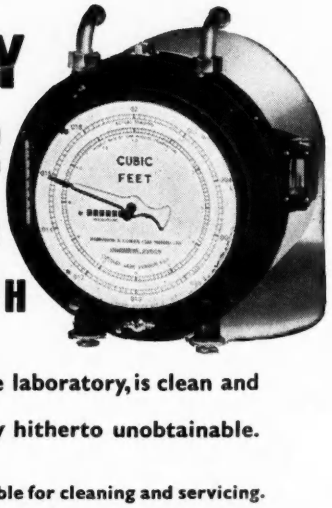

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